

This listing of claims will replace all prior versions,
and listings, of claims in the application:

1 Claim 1 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a method for a
3 particular node to determine a current partial topological
4 state of the network, the method comprising:

- 5 a) determining a zone of the network in which the
6 particular node resides;
7 b) for each node in the zone, determining nodes
8 having a physical communication link with the node in
9 the zone; and
10 c) for each zone in the network, determining zones
11 having a virtual connection with the zone in the
12 network.

A 1 Claim 2 (~~currently amended~~): The method of claim 1 wherein
2 the act of determining nodes having a physical
3 communication link with the node in the zone includes:

- 4 i) broadcasting a link request from the node;
5 ii) if a response to the link request is
6 received by the node,
7 A) if the response was from a node within
8 the same zone as the node, storing an
9 identifier of the responding node, and
10 B) if the response was from a node that is
11 not within the same zone as the node,
12 storing an identifier of the zone to which
13 the responding node belongs; and
14 iii) broadcasting, from the particular node, a
15 link state message including ~~any~~ the identifier
16 of the responding node if the response was from a

17 node within the same zone and any the identifier
18 of the zone to which the responding node belongs
19 if the response was from a node not within the
20 same zone as the node, stored in act (b)(ii).

1 Claim 3 (original): The method of claim 2, wherein the act
2 of determining nodes having a physical communication link
3 with the node in the zone further includes:

4 iv) if a link state message is received, by the
5 node, from another node, then storing the link
6 state message if the other node is within the
7 same zone as the particular node.

1 Claim 4 (original): The method of claim 1, wherein the
2 act, for each zone in the network, of determining zones
3 having a virtual connection with the zone in the network
4 includes:

5 i) determining whether another zone has a node
6 with a physical communications link with a node
7 in the zone, and
8 ii) if it is determined that the other zone has
9 a node with a physical communications link with
10 the zone in the zone, then storing a data
11 structure including an identification of the
12 other zone.

1 Claim 5 (~~currently~~ amended): The method of claim 4,
2 wherein the act, for each zone in the network, of
3 determining zones having a virtual connection with the zone
4 in the network further includes:

5 iii) sending the stored data ~~structures stored~~
6 ~~in act (c)(2)~~ structure, including the

7 identification of the other zone, throughout the
8 network.

1 Claim 6 (currently ~~amended~~): The method of claim 5 wherein
2 the stored data ~~structures stored in act (c)(2)~~ are
3 structure, including the identification of the other zone,
4 is only broadcast by gateway nodes.

1 Claim 7 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a method for a
3 particular node to determine a current partial topological
4 state of the network, the method comprising:
5 a) for each node in a zone in which the particular
6 node resides, determining nodes having a physical
7 communication link with the node in the zone; and
8 b) for each zone in the network, determining zones
9 having a virtual connection with the zone in the
10 network.

1 Claim 8 (currently ~~amended~~): The method of claim 7 wherein
2 the act of determining nodes having a physical
3 communication link with the node in the zone includes:
4 i) broadcasting a link request from the node;
5 ii) if a response to the link request is
6 received by the node,
7 A) if the response was from a node within
8 the same zone as the node, storing an
9 identifier of the responding node, and
10 B) if the response was from a node that is
11 not within the same zone as the node,
12 storing an identifier of the zone to which
13 the responding node belongs; and

14 iii) broadcasting, from the particular node, a
15 link state message including ~~any~~ the identifier
16 of the responding node if the response was from a
17 node within the same zone as the node and ~~any~~ the
18 identifier of the zone to which the responding
19 node belongs if the response was from a node that
20 is not within the same zone as the node, ~~stored~~
21 ~~in act (b) (ii).~~

1 Claim 9 (original): The method of claim 7, wherein the
2 act, for each zone in the network, of determining zones
3 having a virtual connection with the zone in the network
4 includes:

5 i) determining whether another zone has a node
6 with a physical communications link with a node
7 in the zone, and
8 ii) if it is determined that the other zone has
9 a node with a physical communications link with
10 the zone in the zone, then storing a data
11 structure including an identification of the
12 other zone.

1 Claim 10 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a method for
3 transmitting data from a first node in the network to a
4 second node in the network, the method comprising:

5 a) determining whether or not the second node is in
6 the same zone as the first node;
7 b1) if it is determined that the second node is in
8 the same zone as the first node, then routing the data
9 towards the second node based on an intra-zone routing
10 table; and

11 b2) if it is determined that the second node is not
12 in the same zone as the first node, then
13 i) transmitting a location request,
14 ii) if a response to the location request is
15 received, then ensuring that the data is provided
16 with a zone identifier and node identifier for
17 the second node, and
18 iii) routing the data based on an inter-zone
19 routing table.

1 Claim 11 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a method for a
3 particular node to respond to a request for the location of
4 a destination node, the method comprising:

5 a) determining whether or not the destination node is
6 in the zone of the particular node; and
7 b) if the zone of the destination node is in the zone
8 of the particular node, transmitting a reply message
9 which includes an identifier of the zone of the
10 particular node.

1 Claim 12 (original): The method of claim 11 wherein the
2 step of determining whether or not the destination node is
3 in the zone of a particular node is done based on the
4 contents of a intra-zone routing table of the particular
5 node.

1 Claim 13 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a method for a
3 particular node to forward data towards a destination node
4 in a destination zone, the method comprising:

5 a) determining whether or not the destination zone of
6 the data is the same as the zone of the particular
7 node;
8 b1) if it is determined that the destination zone of
9 the data is not the same as the zone of the particular
10 node, then advancing the data towards the destination
11 zone based on an inter-zone routing table; and
12 b2) if it is determined that the destination zone of
13 the data is the same as the zone of the particular
14 node, but that the particular node is not the
15 destination node, then advancing the data towards the
16 destination node based on an intra-zone routing table.

1 Claim 14 (original): The method of claim 13 further
2 comprising:

3 b3) if it is determined that the destination zone of
4 the data is the same as the zone of the particular
5 node, and that the particular node is the destination
6 node, then reading the data.

1 Claim 15 (original): A network having a plurality of nodes
2 arranged in at least two zones, each node comprising:

3 a) a storage device, the storage device storing
4 i) a value identifying one of the at least two
5 zones in which the current node resides,
6 ii) a list of nodes with which the current node
7 has a physical communications link, and
8 iii) a list of zones with which the one of the
9 at least two zones has a virtual connection; and
10 b) a processor which can access information stored on
11 the storage device.

1 Claim 16 (original): The network of claim 15, wherein the
2 storage device further stores
3 iv) an intra-zone routing table, and
4 v) an inter-zone routing table.

1 Claim 17 (original): The network of claim 15, wherein the
2 storage device further stores
3 iv) a list of zones which include a node with
4 which the current node has a physical
5 communications link.

1 Claim 18 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a node comprising:
3 a) a storage device, the storage device storing
4 i) a value identifying one of the at least two
5 zones in which the current node resides,
6 ii) a list of nodes with which the current node
7 has a physical communications link, and
8 iii) a list of zones with which the one of the
9 at least two zones has a virtual connection; and
10 b) a processor which can access information stored on
11 the storage device.

1 Claim 19 (original): The node of claim 18, wherein the
2 storage device further stores
3 iv) an intra-zone routing table, and
4 v) an inter-zone routing table.

1 Claim 20 (original): The node of claim 18, wherein the
2 storage device further stores

3 iv) a list of zones which include a node with
4 which the current node has a physical
5 communications link.

1 Claim 21 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a method for a
3 particular node to generate intra-zone and inter-zone
4 routing tables based on a partial topological current
5 state of the network, the method comprising:
6 a) determining a zone of the network in which the
7 particular node resides;
8 b) for each node in the zone, determining nodes
9 having a physical communication link with the node
10 in the zone;
11 c) determining an intra-zone routing table from the
12 nodes determined to have a physical communication
13 link with the node in the zone;
14 d) for each zone in the network, determining zones
15 having a virtual connection with the zone in the
16 network; and
17 e) determining an inter-zone routing table from the
18 zones determined to have a virtual connection with the
19 zone in the network.

1 Claim 22 (original): In a network having a plurality of
2 nodes arranged in at least two zones, a method for a
3 particular node to generate intra-zone and inter-zone
4 routing tables based on a partial topological current state
5 of the network, the method comprising:
6 a) for each node in the zone, determining nodes
7 having a physical communication link with the node in
8 a zone in which the particular node resides;

9 b) determining an intra-zone routing table from the
10 nodes determined to have a physical communication link
11 with the node in the zone;
12 c) for each zone in the network, determining zones
13 having a virtual connection with the zone in the
14 network; and
15 d) determining an inter-zone routing table from the zones
16 determined to have a virtual connection with the zone in
17 the network.
